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(54) Title: PREPARATION OF SILICON-BRIDGED METALLOCENE COMPOUNDS

(57) Abstract: A process for obtaining silicon-bridged metallocene compounds comprising the following steps: a) reacting, at a temperature of between 10° C and 70° C, the starting ligand with about 2 molar equivalents of an alkylating agent; b) after the reaction has been completed, adding at least 2 molar equivalents of an alkylating agent that can be also different from the first one; and c) reacting, at a temperature of between 10° C and 70° C, the product obtained from step b) with at least 1 molar equivalent of a compound of formula ML's, wherein M is a transition metal; s is an integer corresponding to the oxidation state of the metal; and L' is an halogen atom selected from chlorine, bromine and iodine.

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According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols) IPC 7 C07F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

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C. DOCUMENTS CONSIDERED TO BE RELEVANT							
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.					
A	WO 99 36427 A (RESCONI LUIGI ;BALBONI DAVIDE (IT); PRINI GIANSIRO (IT); MONTELL T) 22 July 1999 (1999-07-22) cited in the application the whole document	1-10					
A	EP 0 604 908 A (SPHERILENE SRL) 6 July 1994 (1994-07-06) example 1	1-10					
A	WO 96 19488 A (EXXON CHEMICAL PATENTS INC ;FISHER RICHARD ALLEN (US); BURKHARDT T) 27 June 1996 (1996-06-27) example 1	1-10					
Α	WO 98 43989 A (MONTELL TECHNOLOGY COMPANY BV) 8 October 1998 (1998-10-08) page 26, line 6 - line 17	1-10					

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Date of the actual completion of the international search	Date of mailing of the international search report
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Interior nal Application No
PCT/EP 0 899

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT							
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.					
А	EP 0 576 970 A (HOECHST AG) 5 January 1994 (1994-01-05) the whole document	1-10					
		·					

					PCT/EP	4899
Patent document cited in search report		Publication date		Patent family member(s)		Publication date
WO 9936427	A	22-07-1999	CN DE WO EP JP US	125592 6990338 993642 097923 200151636 619129	8 D1 7 A1 2 A1 7 T	07-06-2000 14-11-2002 22-07-1999 16-02-2000 25-09-2001 20-02-2001
EP 0604908	А	06-07-1994	IT CA DE DE EP ES FI JP RU	125625 211259 6933078 6933078 060490 216280 93591 625636 216915	8 A1 50 D1 60 T2 8 A2 92 T3 3 A	29-11-1995 01-07-1994 25-10-2001 04-07-2002 06-07-1994 16-01-2002 01-07-1994 13-09-1994 20-06-2001
WO 9619488	A	27-06-1996	AU WO	452719 961948		10-07-1996 27-06-1996
W0 9843989	A	08-10-1998	AU BR CA CN CZ DE WO EP HU JP NO PL US ZA	775819 980480 225713 225717 122688 980434 6980365 6980365 984393 984398 092040 091432 000360 200051231 98557 33022 616293 626851 980465	7 A 17 A 17 A 17 A 18 A 1	22-10-1998 17-08-1999 08-10-1998 08-10-1998 25-08-1999 25-08-1999 11-08-1999 14-03-2002 14-08-2002 08-10-1998 08-10-1998 09-06-1999 12-05-1999 28-02-2001 05-09-2000 28-01-1999 10-05-1999 19-12-2000 31-07-2001 21-12-1998
EP 0576970	Α	05-01-1994	AT AU CA DE EP EP ES FI US US	16219 20996 414919 209921 5930796 5931024 057697 079007 211235 216928 93296 610057 211896 624254 605172	64 T 63 A 64 A1 69 D1 70 A1 76 A2 65 T3 61 A 61 A 61 B1 627 A	15-01-1998 15-12-2001 06-01-1994 28-12-1993 19-02-1998 17-01-2002 05-01-1994 20-08-1997 01-04-1998 01-07-2002 28-12-1993 12-04-1994 20-09-1998 05-06-2001 18-04-2000 03-07-2001

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	Intermonal Application No
l	PCT/EP 14899

Patent document cited in search report	Publication date		Patent family member(s)	Publication date
EP 0576970 A		US US US US ZA	5786432 A 5770753 A 5840644 A 2001021755 A1 9304577 A	28-07-1998 23-06-1998 24-11-1998 13-09-2001 01-02-1994